

DERWENT-ACC-NO: 1996-300529
DERWENT-WEEK: 200215
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TITLE: Crystal glass free of toxic lead - has lead
replaced mainly by zinc,
barium and bismuth plus possibly lanthanum and niobium

INVENTOR: BOSCHI, G; PALOSCHI, F ; BOSCHI, C

PATENT-ASSIGNEE: CALP CRISTALLERIA ARTISTICA LA PIANA
SPA[CALPN]

PRIORITY-DATA: 1994IT-FI00223 (December 13, 1994)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
WO 9618586 A1	June 20, 1996	E
017	C03C 004/00	
CZ 289336 B6	January 16, 2002	N/A
000	C03C 003/078	
AU 9641870 A	July 3, 1996	N/A
000	C03C 004/00	
IT 1268814 B	March 6, 1997	N/A
000	C03C 000/00	
EP 797550 A1	October 1, 1997	E
000	C03C 004/00	
CZ 9701816 A3	November 12, 1997	N/A
000	C03C 003/078	
BR 9509993 A	December 30, 1997	N/A
000	C03C 004/00	
SK 9700747 A3	March 4, 1998	N/A
000	C03C 004/00	
HU 77862 T	August 28, 1998	N/A
000	C03C 004/00	
MX 9704206 A1	September 1, 1997	N/A
000	C03C 004/00	
JP 10510793 W	October 20, 1998	N/A
016	C03C 003/097	
KR 98700237 A	March 30, 1998	N/A
000	C03C 004/00	
IL 116180 A	January 31, 2000	N/A
000	C03C 004/00	
RU 2137725 C1	September 20, 1999	N/A
000	C03C 003/078	

US 6235667 B1	May 22, 2001	N/A
000	C03C 003/078	
KR 262262 B1	July 15, 2000	N/A
000	C03C 004/00	
EP 797550 B1	June 20, 2001	E
000	C03C 004/00	
DE 69521440 E	July 26, 2001	N/A
000	C03C 004/00	
ES 2160181 T3	November 1, 2001	N/A
000	C03C 004/00	

DESIGNATED-STATES: AM AU BB BG BR BY CA CN CZ EE FI GE HU
 IS JP KE KG KP KR KZ L
 K LR LT LV MD MG MN MW MX NO NZ PL RO RU SD SG SI SK TJ TM
 TT UA UG US UZ VN AT
 BE CH DE DK ES FR GB GR IE IT KE LS LU MC MW NL OA PT SD SE
 SZ UG AT BE CH DE DK
 ES FR GB GR IE IT LI NL PT SE AT BE CH DE DK ES FR GB GR
 IE IT LI NL PT SE

CITED-DOCUMENTS: 01Jnl.Ref; EP 553586 ; JP 06107425 ; US
 4098596

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
WO 9618586A1	N/A	1995WO-IT00215
December 11, 1995		
CZ 289336B6	N/A	1995WO-IT00215
December 11, 1995		
CZ 289336B6	N/A	1997CZ-0001816
December 11, 1995		
CZ 289336B6	Previous Publ.	CZ 9701816
N/A		
CZ 289336B6	Based on	WO 9618586
N/A		
AU 9641870A	N/A	1996AU-0041870
December 11, 1995		
AU 9641870A	Based on	WO 9618586
N/A		
IT 1268814B	N/A	1994IT-FI00223
December 13, 1994		
EP 797550A1	N/A	1995EP-0940408
December 11, 1995		
EP 797550A1	N/A	1995WO-IT00215
December 11, 1995		
EP 797550A1	Based on	WO 9618586

	N/A		
CZ 9701816A3	N/A		1995WO-IT00215
December 11, 1995			
CZ 9701816A3	N/A		1997CZ-0001816
December 11, 1995			
CZ 9701816A3	Based on		WO 9618586
N/A			
BR 9509993A	N/A		1995BR-0009993
December 11, 1995			
BR 9509993A	N/A		1995WO-IT00215
December 11, 1995			
BR 9509993A	Based on		WO 9618586
N/A			
SK 9700747A3	N/A		1995WO-IT00215
December 11, 1995			
SK 9700747A3	N/A		1997SK-0000747
December 11, 1995			
HU 77862T	N/A		1995WO-IT00215
December 11, 1995			
HU 77862T	N/A		1998HU-0000676
December 11, 1995			
HU 77862T	Based on		WO 9618586
N/A			
MX 9704206A1	N/A		1997MX-0004206
June 6, 1997			
JP 10510793W	N/A		1995WO-IT00215
December 11, 1995			
JP 10510793W	N/A		1996JP-0518561
December 11, 1995			
JP 10510793W	Based on		WO 9618586
N/A			
KR 98700237A	N/A		1995WO-IT00215
December 11, 1995			
KR 98700237A	N/A		1997KR-0703982
June 13, 1997			
KR 98700237A	Based on		WO 9618586
N/A			
IL 116180A	N/A		1995IL-0116180
November 28, 1995			
RU 2137725C1	N/A		1995WO-IT00215
December 11, 1995			
RU 2137725C1	N/A		1997RU-0111785
December 11, 1995			
RU 2137725C1	Based on		WO 9618586
N/A			
US 6235667B1	CIP of		1995WO-IT00215
December 11, 1995			
US 6235667B1	CIP of		1997US-0860842

US 6235667B1	June 10, 1997	N/A	1999US-0328303
KR 262262B1	June 8, 1999	N/A	1995WO-IT00215
KR 262262B1	December 11, 1995	N/A	1997KR-0703982
EP 797550B1	June 13, 1997	N/A	1995EP-0940408
EP 797550B1	December 11, 1995	N/A	1995WO-IT00215
EP 797550B1	December 11, 1995	Based on	WO 9618586
DE 69521440E	N/A	N/A	1995DE-0621440
DE 69521440E	December 11, 1995	N/A	1995EP-0940408
DE 69521440E	December 11, 1995	N/A	1995WO-IT00215
DE 69521440E	December 11, 1995	Based on	EP 797550
DE 69521440E	N/A	Based on	WO 9618586
ES 2160181T3	N/A	N/A	1995EP-0940408
ES 2160181T3	December 11, 1995	Based on	EP 797550
	N/A		

EP 797550 B1
 INT-CL (IPC): C03C000/00; C03C003/078 ; C03C003/085 ;
 C03C003/093 ;
 C03C003/095 ; C03C003/097 ; C03C004/00

ABSTRACTED-PUB-NO: EP 797550B
 BASIC-ABSTRACT: A lead-free glass having a density greater than 2.9 g/cc and a refractive index greater than 1.545. The glass has a compsn. by wt. 50-58% SiO₂, 0-13% K₂O, 0-9% Na₂O 0-4% Li₂O, 0-3% CaO, 0-4% MgO, 0-3% Al₂O₃, 16-30% ZnO, 0-12% BaO, 0-6% TiO₂, 0-9% La₂O₃, 0-9% Nb₂O₅, 0-12% Bi₂O₃, 0-5% GeO, 0-2% B₂O₃, 0-5% ZrO₂, 0-5% Y₂O₃ and 0-5% SnO₂. The following conditions apply.
 K₂O+Na₂O+Li₂O=12-18%; Al₂O₃+MgO+CaO=0-4%;
 SiO₂+Al₂O₃=52-58%;
 Bi₂O₃+ZnO+BaO+La₂O₃+Nb₂O₅=26-33%;
 Bi₂O₃+BaO+La₂O₃+Nb₂O₅=7-14%;

$\text{TiO}_2 + \text{Y}_2\text{O}_3 + \text{ZrO}_2 = 0-6\%$ and the sum of the other oxides is less than 2%.

USE - Used as a substitute for lead crystal glass.

ADVANTAGE - Potential toxicity of lead is avoided.

ABSTRACTED-PUB-NO: US 6235667B

EQUIVALENT-ABSTRACTS: A lead-free glass having a density greater than 2.9 g/cc and a refractive index greater than 1.545. The glass has a compsn. by wt.

50-58% SiO_2 , 0-13% K_2O , 0-9% Na_2O 0-4% Li_2O , 0-3% CaO , 0-4% MgO , 0-3% Al_2O_3 ,

16-30% ZnO , 0-12% BaO , 0-6% TiO_2 , 0-9% La_2O_3 , 0-9% Nb_2O_5 , 0-12% Bi_2O_3 , 0-5%

GeO , 0-2% B_2O_3 , 0-5% ZrO_2 , 0-5% Y_2O_3 and 0-5% SnO_2 . The following conditions

apply. $\text{K}_2\text{O} + \text{Na}_2\text{O} + \text{Li}_2\text{O} = 12-18\%$; $\text{Al}_2\text{O}_3 + \text{MgO} + \text{CaO} = 0-4\%$;

$\text{SiO}_2 + \text{Al}_2\text{O}_3 = 52-58\%$;

$\text{Bi}_2\text{O}_3 + \text{ZnO} + \text{BaO} + \text{La}_2\text{O}_3 + \text{Nb}_2\text{O}_5 = 26-33\%$;

$\text{Bi}_2\text{O}_3 + \text{BaO} + \text{La}_2\text{O}_3 + \text{Nb}_2\text{O}_5 = 7-14\%$;

$\text{TiO}_2 + \text{Y}_2\text{O}_3 + \text{ZrO}_2 = 0-6\%$ and the sum of the other oxides is less than 2%.

USE - Used as a substitute for lead crystal glass.

ADVANTAGE - Potential toxicity of lead is avoided.

A lead-free glass having a density greater than 2.9 g/cc and a refractive index

greater than 1.545. The glass has a compsn. by wt. 50-58%

SiO_2 , 0-13% K_2O ,

0-9% Na_2O 0-4% Li_2O , 0-3% CaO , 0-4% MgO , 0-3% Al_2O_3 , 16-30%

ZnO , 0-12% BaO ,

0-6% TiO_2 , 0-9% La_2O_3 , 0-9% Nb_2O_5 , 0-12% Bi_2O_3 , 0-5% GeO ,

0-2% B_2O_3 , 0-5% ZrO_2 ,

0-5% Y_2O_3 and 0-5% SnO_2 . The following conditions apply.

$\text{K}_2\text{O} + \text{Na}_2\text{O} + \text{Li}_2\text{O} = 12-18\%$; $\text{Al}_2\text{O}_3 + \text{MgO} + \text{CaO} = 0-4\%$;

$\text{SiO}_2 + \text{Al}_2\text{O}_3 = 52-58\%$;

$\text{Bi}_2\text{O}_3 + \text{ZnO} + \text{BaO} + \text{La}_2\text{O}_3 + \text{Nb}_2\text{O}_5 = 26-33\%$;

$\text{Bi}_2\text{O}_3 + \text{BaO} + \text{La}_2\text{O}_3 + \text{Nb}_2\text{O}_5 = 7-14\%$;

$\text{TiO}_2 + \text{Y}_2\text{O}_3 + \text{ZrO}_2 = 0-6\%$ and the sum of the other oxides is less than 2%.

USE - Used as a substitute for lead crystal glass.

ADVANTAGE - Potential toxicity of lead is avoided.

WO 9618586A

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS:

CRYSTAL GLASS FREE TOXIC LEAD LEAD REPLACE MAINLY ZINC
BARIUM BISMUTH PLUS
POSSIBILITY LANTHANUM NIOBIUM

DERWENT-CLASS: L01

CPI-CODES: L01-A01; L01-A05;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1996-095484